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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/706,090	11/13/2003	Junji Sugamoto	02887.0259	7292

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EXAMINER	
SMITH, BRADLEY	
ART UNIT	**PAPER NUMBER**
2891	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/25/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/706,090	SUGAMOTO ET AL.	
	Examiner	Art Unit	
	Bradley K. Smith	2891	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 November 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *6 and 8-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *6,8-15,22-36* is/are rejected.

7)☒ Claim(s) *16-21* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 11/2/06
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 9, and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Naruoka (US 2003/0113941). Naruoka disclose removing said film with a chemical solution to expose the crystal surface of the semiconductor wafer; selectively removing a surface layer of the semiconductor wafer by selective etching without dicing to bring the crystal defect into view; and quantitatively evaluating the crystal defect [0031-0037]. With regards to claim 15, Narouka disclose the selective etch uses chromic oxide.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 6, 9, 10, 12-14, 23-24, 32-33, 35, and 36 are rejected under 35 U.S.C. 103(a) as being anticipated by Barge et al. (US 2005/0208322)in view of Naruoka. Barge et al. disclose removing said film with a chemical solution to expose the crystal surface of the semiconductor wafer; selectively removing a surface layer of the semiconductor wafer by selective etching without dicing to bring the crystal defect into view; and quantitatively evaluating the crystal defect (0081-0085). With regards to claim 10, Barge et al. disclose the first solution having an oxidative agent and a second solution having HF (0082-0083). With regards to claim 12 and 13, Barge et al. disclose removing the film (contaminants and particles) (0084). With regards to claim 14 , Barge et al. disclose removing the film with HF. With regards to claim 6, 32-33 , Barge et al. disclose using a third solution (0084). Barge fails to disclose the formation of a device structure with a device pattern. However Naruoka disclose the formation of a device structure with a device pattern and evaluating it for defects [0031-0035]. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Barge and Naruoka in order to improve the working layer quality of the working layer [Barge 0001-0006].

Claims 8 11, 25 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barge et al. and Naruoka in view of Sato . Barge et al. disclose removing said film with a chemical solution to expose the crystal surface of the semiconductor wafer; selectively removing a surface layer of the semiconductor wafer by selective etching without dicing to bring the crystal defect into view; and

quantitatively evaluating the crystal defect (0081-0085). However Barge et al. fails to disclose the concentration of the HF. Whereas Sato disclose a 49% solution of HF (column 25 lines 45-50). Therefore it would have been obvious to one of ordinary skill to combine the teachings of Barge et al. and Sato, because altering the concentration would be well known to those of ordinary skill in the art, would etch the material faster and it would anodize the silicon layer.

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Barge et al. and Naruoka in view of Chiang et al. Barge et al. disclose removing said film with a chemical solution to expose the crystal surface of the semiconductor wafer; selectively removing a surface layer of the semiconductor wafer by selective etching without dicing to bring the crystal defect into view; and quantitatively evaluating the crystal defect (0081-0085). However Barge et al. fails to disclose the use of ultrasonic waves. However Chiang disclose the use of ultrasonic waves to clean. Therefore it would have been well known in the art at the time the invention was made to combine Barge and Chiang , because the use of ultra sonic waves was well known in the art (0004 Chiang).

Allowable Subject Matter

Claims 16-21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the prior art of record fails to teach making a reference image which is free of defects and comparing the image to the evaluated structure (claims 16-21).

Response to Arguments

Applicant's arguments filed 11/2/06 have been fully considered but they are not persuasive. With regards to the applicants first argument that Naruoka fails to disclose all of the elements of claim 9, the examiner would like to point out that Naruoka disclose a device pattern and etching to expose the defects [0031-0037].

Applicant's arguments, see page 14 paragraph 3, filed 11/2/06, with respect to the rejection(s) of claim(s) 6, 9, 10, 12-14, 23-24, and 32-33 under 102(e) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Naruoka.

With regards to the applicant's third argument the current rejection has been changed to incorporate Naruoka. The applicant's specification teaches that the "unexpected results" occur from 33%-49%, and Sato teaches using a 49% solution in order to etch the substrate. Furthermore it is the examiner's understanding that a solution of 49% HF would be close enough to read on less than 49% (because the applicant has given no frame of reference when claiming how much less than 49%).

With regards to the applicant's last argument with respect to Barge and Chiang. The examiner has incorporated Naruoka in order to teach all of the claim limitations.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bradley K. Smith whose telephone number is 571-272-1884. The examiner can normally be reached on 10-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Baumeister can be reached on 571-272-1722. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/B.K.S./

Bradley K Smith
Primary Examiner
Art Unit 2891